

WHAT WE CLAIM IS:

1. A process for the monomethylation of nitrogenous heterocycles having at least one nitrogen atom bonded to a hydrogen atom comprising reacting said heterocycle with dimethyl carbonate at a temperature of between 100°C and 200°C and at a pressure of between 0.93 to  $10^5$  Pa and  $1.07 \times 10^5$  Pa while continuously withdrawing the methanol produced during the reaction.
2. The process of claim 1, wherein the nitrogenous heterocycles have a boiling point of at least equal to 120°C.
3. The process of claim 2, wherein the nitrogenous heterocycles are selected from the group consisting of benzene derivatives of azoles, indoline, pyrazolidine, morpholine, piperazine and azepine.
4. The process of claim 1, wherein the reaction is carried out at a temperature of between 120°C and 180°C.
5. The process of claim 1, wherein the amount of dimethyl carbonate is between 1 and 5 mole per mole of nitrogenous heterocycle.
6. The process of claim 1, wherein the dimethyl carbonate is added gradually to the reactor medium.

7. The process of claim 6, wherein the dimethyl carbonate is introduced into the reactor medium with a flow rate of between 0.001 mol/mol of nitrogenous heterocycle.h and 1 mol/mol of nitrogenous heterocycle.h
8. The process of claim 1, wherein the nitrogenous heterocycle comprises at least two nitrogen atoms each bonded to a hydrogen atom.
9. The process of claim 8, wherein the monomethylated nitrogenous heterocycle is continuously withdrawn.